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John C. Stennis Space Center

# LAGNIAPPE

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## Return to Flight

### Report: Multiple roles played part in accident

The Columbia Accident Investigation Board (CAIB) report released Aug. 26 provided NASA with the roadmap for return-to-flight efforts. The CAIB report focused its findings on three key areas: systemic cultural and organizational issues, requirements for returning safely to flight and technical excellence.

### Implementation plan committed to safe flight

NASA's Return to Flight Implementation Plan released Sept. 8 will go beyond complying with the Columbia Accident Investigation Board's recommendations to also anticipate and meet future challenges. NASA will use the implementation plan to fix the causes of the Columbia accident while recommitting to excellence, strengthening culture, improving technical capabilities and ensuring human space flight is as safe as possible.

### Preparing for flight

A Return to Flight workshop for media at Johnson Space Center in Houston on Sept. 16-18 provided a detailed look at NASA's efforts to safely return the Space Shuttles to flight. On Sept. 26, the media saw Space Shuttle Atlantis at Kennedy Space Center as it is prepared for its next mission, STS-114.

*"What will I do today to help return to safe flight?"*

Sean O'Keefe  
NASA Administrator



### Greater capacity for E1 Test Stand

An 80-foot-long, 240-ton pressure tank is positioned at the E1 Test Stand on Sept. 12. The E-Complex Test Facility consists of three stands, E1, E2 and E3, for testing future reusable liquid rocket engines. The tank, the first of three to be delivered to SSC, will increase the stand's capacity to pressurize propellant tanks.

## NASA adopting Stennis-developed training module

An Environmental Management System (EMS) computer training module developed at Stennis Space Center (SSC) will soon be rolled out for use NASA-wide, according to Anne Peek, SSC's environmental officer.

Carolyn Kennedy, NASA environmental specialist, said the module shows the process used to develop an EMS and how objectives and targets are set for activities determined to have high risk of impact on the environment.

NASA Headquarters recently decided that the module would be a valuable tool to train NASA and NASA contractor personnel on EMSs beyond what is available for general awareness training.

Employees will be able to work through the training module, "NASA Environmental Management Systems," in about 20 minutes at their own desktop by accessing the SOLAR (Site for Online Learning and Resources) Web site via the SSC Intranet Portal. The module is scheduled

for release to the SOLAR Web site in mid-October following final adjustments.

Gerry Ledet and Sean Labat of Lockheed Martin Space Operations created the program that drives the EMS module, and Sarah Luster, NASA Co-op student, provided the text and coordinated the information presented in the module.

"We are proud to have developed a valuable tool at Stennis that holds the potential to benefit all of NASA," Peek said.

## Collaborative efforts produce SSC's first strategic plan

The Stennis Space Center (SSC) Executive Council, comprised of the senior managers of major public and private organizations, recently completed the first-ever strategic plan developed for the center.

The executive council was established to provide a formal mechanism for fostering the coordination, collaboration and esprit de corps among federal, state, academic and private sector organizations and their employees.

"The overall purpose of this new effort is to maximize the potential for future growth and development of this unique federal and commercial city

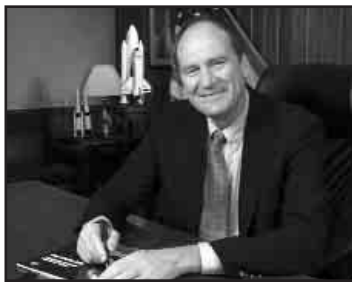
and surrounding communities as well as jointly address topics of mutual concern and interest," said Michael Rudolphi, SSC interim center director.

The strategic plan will leverage resources across all SSC organizations for their mutual benefit, and lay the foundation for "Growing the Stennis Region" by investing in education and quality of life at the center and surrounding communities.

Any employee with an idea to make SSC an even better center is encouraged to give their input to a working team member, whose names are listed on the following Web site: <http://sscportal.ssc.nasa.gov/sscstrategicplan>.

# *From the desk of Michael Rudolphi*

*Stennis Space Center Interim Director*



Last month the Columbia Accident Investigation Board (CAIB) released its report on events that led to the tragic loss of Columbia and seven of our astronauts. On Sept. 8, NASA rolled out the Return to Flight Implementation Plan that clearly illustrates NASA is committed to embracing, accepting and complying with the CAIB findings.

Combined, the report and the plan have added a higher level of interest and activity throughout NASA. With this increased activity, it's often easy for people to get distracted as they go about their daily activities. Recent organizational changes at Stennis and throughout NASA provide yet more avenues for distractions. With these changes to our environment and while preparing for return to flight, it is natural for people to become distracted and stressed. When this happens, the best way to overcome the problem is to first, acknowledge the distraction and second, regain focus.

Even though some people are better at coping with stress than others, it's just as

important for everyone to keep a watchful eye on those around us and ensure they are kept safe. By staying focused on our values and esprit, I'm certain the outstanding people of Stennis will continue to excel in a safe environment.

*I can assure you the leadership at Stennis is very interested in ensuring everything we do is done in a safe, world-class manner.*

ensuring everything we do is done in a safe, world-class manner. If, after contacting your supervisor(s) the issue remains unresolved, please feel free to contact me. You may also contact the NASA Safety Reporting System to ensure your concerns are addressed.

I applaud the people of Stennis for maintaining a high level of excellence in all we do, but we must continue to stay focused and remain safe.

*MURGL*

## **Throckmorton assigned to Stennis through development program**

David A. Throckmorton has been named assistant director of NASA Stennis Space Center (SSC).

Throckmorton is one of four executives "matched" to select program assignments through the Office of Space Flight's Corporate Executive Development Program pilot.

In his new position Throckmorton will assist Interim Center Director Michael Rudolphi in the leadership and management of SSC, including its workforce, facilities, programs and projects.

"I am really pleased to be a member of the Stennis family, and I am excited about the opportunity to work with our team of civil servants and contractors," Throckmorton said.

Originally from South Charleston, W.V., Throckmorton was most recently deputy director of the Engineering Directorate at Marshall Space Flight Center in Huntsville, Ala., where he led a workforce engaged in engineering design, analyses, development and testing in support of spaceflight programs.



## **NEWSCLIPS**

### **Chandra 'hears' a black hole**

NASA's Chandra X-ray Observatory detected sound waves for the first time from a super-massive black hole. The "note" is the deepest ever detected from an object in the universe.

The black hole resides in the Perseus cluster, located 250 million light years from Earth.

"These sound waves may be the key in figuring out how galaxy clusters, the largest structures in the universe, grow," said Steve Allen, of the Institute of Astronomy in Cambridge, England, and a co-investigator in the research.

### **NASA's space technology provides firefighting data**

NASA is aiding firefighters and managers battling wildfires across the United States by providing views from space before, during and after fires. The information allows firefighters to respond to wildfires quickly, effectively allocate resources, and helps make firefighting easier and safer.

NASA provides information to fire managers and firefighters by combining data from multiple spacecraft and Unmanned Aerial Vehicles. Coupled with data from forest service airborne instruments and other data from space, scientists and fire managers have a more complete picture of a situation in near real-time.

### **NASA opens new chapter in supersonic flight**

Flight tests completed by NASA, with government and industry partners, may have demonstrated a way to reduce the window-rattling impact of sonic booms.

In flights conducted Aug. 27 on the same test range where Chuck Yeager first broke the sound barrier nearly 56 years ago, the team showed modifying an aircraft's shape can also change the shape of its sonic boom, thereby reducing loudness. This theory had never been demonstrated in actual flight.

"This demonstration is the culmination of 40 years of work by visionary engineers," said Richard Wlezien, program manager for Vehicle Systems in NASA's Office of Aerospace Technology, Washington. "They foresaw a way to solve the sonic boom problem, and to enable a generation of supersonic aircraft that do not disturb people on the ground. It is but one of many frontiers in aeronautics that remain to be explored."





*We Have Friends In High Places*

### Space Station crew maintains busy schedule

Hurricane photography took its place alongside other science and maintenance on the International Space Station (ISS) the week of Sept. 19, where Expedition 7 Commander Yuri Malenchenko and NASA ISS Science Officer Ed Lu completed a busy week on orbit.

The week's Earth Observation research focused on Hurricane Isabel. Cameras on the Station's S1 Truss and Destiny Laboratory, plus a hand-held camera operated by Lu, provided an additional perspective on the size and shape of the large storm as it moved through the western Atlantic Ocean on its way to landfall along the North Carolina coast. Those photographs can be accessed through the Human Spaceflight Web site, <http://space-flight.nasa.gov/>.

Lu also used the Microgravity Sciences Glovebox (MSG) to complete two more experiment runs of the Pore Formation and Mobility Investigation, a study of the formation of bubbles in samples of metals or crystals that may weaken the sample's strength or effectiveness.

Malenchenko and Lu took time Sept. 18 to discuss their mission with reporters at the Johnson Space Center in Houston. The Crew News Conference was part of a workshop on NASA efforts to meet the recommendations set out by the Columbia Accident Investigation Board to return the Space Shuttle to flight after the loss of Columbia and its crew Feb. 1.

The next ISS crew, Expedition 8, is slated to launch from Kazakhstan on Oct. 18, travel aboard the Soyuz TMA-3 spacecraft and dock with the ISS on Oct. 20. Commander and NASA ISS Science Officer Michael Foale and Flight Engineer Alexander Kaleri are scheduled to spend about six months aboard the ISS.

## New safety center draws on nation's top experts

The investigation of the Columbia tragedy revealed the need for NASA to improve its ability to verify engineering and safety standards; share technical information, practices and talent; and independently assess the ability to achieve mission success.

To this end, Administrator Sean O'Keefe in July announced the establishment of the NASA Engineering and Safety Center (NESC). As chartered, the NESC will provide independent technical expertise to evaluate problems and supplement safety and engineering activities for NASA programs and projects.

"The NESC will draw on the engineering talents of the best minds across NASA's 10 field centers," said Langley Director Roy D. Bridges Jr. O'Keefe has tasked Bridges with the development and startup of the NESC.

The NESC will take policy direction from Bryan O'Connor, associate administrator for the Office of Safety and Mission Assurance.

"In addition to NASA expertise, the NESC will also tap the nation's top experts in industry, Department of Defense, national laboratories and universities," said O'Connor.

The NESC will provide centralized management of independent engineering assessment. NESC experts will use state-of-the-art tools and methods and will have the benefit of adequate funding to perform truly independent assessments and trend analysis.

The NESC does not relieve program managers from their responsibility for safety. Instead, NESC initiatives will complement the engineering and safety efforts of programs and centers.

The NESC will be based at the Langley Research Center, Hampton, Va., and will have a management office of approximately 30-40 full-time employees.

Another 30-50 senior engineering and



**Ralph Roe, special assistant to Langley Director Roy D. Bridges Jr., addresses NASA Stennis Space Center employees Sept. 11 about the NASA Engineering and Safety Center (NESC).**

safety experts will be located at the centers but assigned full-time to the NESC. This workforce will be supplemented through partnerships with external organizations.

"Ready-experts" at each field center will be a vital part of the team. From across NASA, 150-200 experts in a variety of technical specialties will be called upon for peer review and critique-of-flight rationale, mission requirements, testing, trending, lessons learned and the like.

Bridges has chosen Ralph Roe as his special assistant to develop the NESC's implementation plan.

"It's a tremendous responsibility but a stimulating opportunity," said Roe. "While the NESC is one of several initiatives in returning the Shuttle to safe flight, its broader objectives include strengthening and expanding NASA's safety, mission assurance and engineering disciplines for major programs."

### Stennis sponsors this year's Combined Federal Campaign

Representatives from NASA Stennis Space Center (SSC) and 21 other businesses and agencies met Sept. 8 for the 2003 kickoff event of the Combined Federal Campaign/United Way of South Mississippi at the Grand Casino Event Center in Gulfport. This is the first year the two campaigns have joined forces for the annual fund drive kickoff.

SSC Interim Center Director Michael Rudolphi is chairman of the Southern Mississippi Combined Federal Campaign (CFC), the largest in the state. Representing 25,000 federal employees in 14 South Mississippi counties, the Southern Mississippi CFC raised \$850,000 last year for 1,038 local and national causes.

"The local CFC campaign kicks off at Stennis Oct. 16, and I encourage all employees to join in the campaign," said Rudolphi.

The goal for this year's drive is \$860,000, according to Marina Benigno, SSC's director, Center Operations and Support Directorate. Benigno is coordinator for the Local Federal



**Marina Benigno, SSC's director of Center Operations and Support, talks with Mississippi Space Services' Sarah Middleton, left, and Linda Stockstill at the 2003 kickoff event for the Combined Federal Campaign/United Way of South Mississippi.**

Coordinating Committee.

For information about CFC, visit [www.opm.gov/cfc/](http://www.opm.gov/cfc/). For information about United Way of South Mississippi, visit [www.uw-sm.org](http://www.uw-sm.org).

# Technology development awards reach an all-time high

Fiscal Year 2003 was a record year for Inventions and Contribution Board awards to NASA Stennis Space Center (SSC) Technology Development and Transfer Office.

Forty-two people received a combined \$25,300 for technologies originating at SSC that promise to have an impact on life inside and outside NASA.

"I want to thank each of the award recipients for making it the record year it was," said John Bailey, aerospace technologist, electronic instrumentation system, with NASA's Technology and Development Transfer Office.

Bruce Spiering, aerospace technologist, electronic instrumentation system, with SSC's Program Integration Office (PIO), and Gregory Carter, with the University of Southern Mississippi, formerly with NASA, each received a Space Act Award for developing a plant chlorophyll content meter.

Larry de Quay, aerospace

technologist, theoretical simulation techniques, with SSC Propulsion Test Directorate's (PTD) Systems Analysis Division, received an award for his development of a computer program that determines flow regime and calculates pressure drops and recoveries for fluid flows.

Paul Lagarde of Boeing Co.-Rocketdyne Propulsion also won an award for software to record test data on hard disks at high speeds.

Vicki Zaroni, aerospace technologist, technical management, with NASA's Earth Science Applications (ESA) Directorate, and Robert Ryan, Slawomir Blonski, Randall Greer, Gerald Gasser and Jeffrey Russell, all with Lockheed Martin Space Operations (LMSO), each received an award for development of the Application Research Toolbox that allows researchers to run simulations on data before dealing with the hardware.

Chiu-Fu Cheng, with LMSO,



**Tech Transfer Fiscal Year 2003 Awards recipients, back row, from left, are Scott Jensen, Chuck Thurman, Gerald Gasser, Russell Daines, Robert Ryan and Randy Holland. Front row, from left, are Paul Lagarde, Wanda Solano, Vicki Zaroni, Bruce Spiering and Slawomir Blonski.**

received awards for software to improve data extraction from tape storage and for a set of programs he wrote to preprocess digitized outputs of sensors during rocket engine tests at SSC's E-Complex.

Receiving awards for publication in Tech Briefs, NASA's monthly magazine featuring reports of innovations developed by NASA and its industry part-

ners/contractors, were: Vicki Zaroni, ESA; Terence Burrell, Chiu-Fu Cheng, Russell Daines, Thomas Nixon, Robert Ryan, Mary Pagnutti, Richard Spooner and Jody Woods, all LMSO; Wanda Solano and Chuck Thurman, both PIO; and Randy Holland (currently on a detailed assignment to ESA) and Scott Jensen, both PTD.



## Women's Equality Day

Dina Barmasse, above, director of human resources, The Boeing Co., Canoga Park, Calif., was guest speaker for the SSC Women's Equality Day luncheon on Aug. 21.

The day is nationally celebrated Aug. 26 to commemorate the 1920 passage of the 19th Amendment to the Constitution granting women the right to vote and to call attention to women's continuing efforts toward full equality.

Women's Equality Day is sponsored annually by a sitewide planning committee of government and contractor personnel.

## Faster access to satellite data could benefit environmental research

Researchers at Stennis Space Center (SSC) have a new and powerful tool to use – directly downlinked Moderate Resolution Imaging Spectroradiometer (MODIS) multispectral data from NASA's Aqua and Terra satellites – that provides remote sensing images of the entire Gulf of Mexico and the Caribbean with a special focus on the Gulf Coast. These satellites can image the Gulf of Mexico a minimum of four times a day to monitor changes in the environment.

MODIS data itself isn't new, but the capability to receive the data directly from a satellite at Stennis and make it available to the public is.

"Typically it can take days to months to get a MODIS image" from a distributed active archive center, said Tom Stanley, an Earth Science Applications (ESA) Directorate research scientist. "Now it's broadcasting data to us and we can distribute

it to researchers in an hour. That's what's important."

Having access to near real-time MODIS data makes new research possible and can improve results for existing research projects, especially if the time between image collections is critical.

These satellites were designed to monitor the land, ocean and atmosphere using spectral channels that enable environmental monitoring and have spatial resolutions of 1 kilometer and 250 meters.

The MODIS sensor allows researchers to view changes in the ocean similar to the way meteorological satellites can show cloud movements.

ESA is determining how to use the MODIS data and take advantage of its timeliness and ability to image the Gulf Coast. ESA has a lead role in five of NASA's 12 National Applications: Agricultural Efficiency, Disaster Preparedness, Coastal

Management, Ecological Forecasting and Homeland Security. There are possible applications for MODIS data in each of these research areas.

The Naval Research Laboratory (NRL) at SSC is playing an important role in developing the MODIS data for research. The NRL receives the MODIS data after it is initially processed by Lockheed Martin Space Operations, said Robert Arnone, head of the Ocean Sciences Branch of the NRL.

"We're processing the data to what we call Level 3, which will enable us to develop an 'ocean weather' capability unique to the Gulf Coast," Arnone said. Basically, NRL scientists are calibrating the MODIS data to remove data discrepancies caused by the atmosphere and developing new remote sensing products of the coastal ocean such as chlorophyll, water turbidity and sea surface temperature.



# Past and present, Stennis plays vital role in history of flight

From a small, wood-and-fabric glider that lifted just 12 inches off the sands of Kitty Hawk, N.C., in 1903, human flight has made astonishing progress in the past century. NASA Stennis Space Center (SSC) has played a key role in that effort.

In May 1961 Pres. John F. Kennedy challenged NASA and America to go to the Moon before the decade ended. In October of that year, an area in Hancock County was selected as the site to test the launch vehicles for the Apollo program, and SSC (then the Mississippi Test Facility) was born. Its construction was the largest building project in Mississippi and second largest in the country at that time.

## Apollo

In April 1966, the center conducted the first static test firing of the Apollo/Saturn V second-stage prototype. Less than a

year later, testing began for the first and second stages of the Apollo/Saturn V rocket to go to the Moon. In July 1969, humankind marked one of its most phenomenal achievements, landing an American on the Moon.

## Space Shuttle

The Space Shuttle improved access to space by utilizing the first and only reusable space vehicle.

In December 1970, Roy Estess, a NASA engineer and future center director at SSC, presented a proposal to NASA Headquarters that all Space Shuttle Main Engine (SSME) testing be done at the Mississippi Test Facility. On March 1, 1971, NASA selected the facility to do all SSME sea-level testing.

The test stands were converted to accommodate SSMEs, and on June 24, 1975, the first test firing of an SSME took place. On April 12, 1981, Space Shuttle Columbia lifted off, powered by engines tested at SSC (then the Nation-



Above, a huge vapor cloud rises in the sky during the first static firing of the Saturn V second-stage prototype (SII-T) on April 23, 1966, at NASA Stennis Space Center (then the Mississippi Test Facility). Right, Apollo 11 lifts off for the Moon, July 16, 1969.



al Space Technology Laboratories).

A major milestone will be achieved later this year when the one millionth second SSME hot-fire test is reached.

## The Future

SSC's state-of-the-art facilities include the A-, B- and E-Complexes, designed for propulsion testing that ranges from component to engine to stage-level.

SSC's flexible, three-stand E-Complex with its seven separate test cells serves as a component test facility for future generation rocket engines. This testing includes the Integrated Powerhead Demonstrator (the first reusable hydrogen-fueled advanced engine in development since the SSME) and two kerosene-fueled engines, the TR-107 and RS-84.

Full-power testing on the Linear Aerospike engine was accomplished on the A-1 Test Stand in December 1999. Technology tested on the Linear Aerospike is may be used on engines that will power

future spacecraft.

Today, SSC leases one of its test stands to a commercial customer. The Boeing Co., chose SSC as the site to assemble the RS-68 engine for its Delta IV launch vehicle program. The RS-68 engine is the world's largest liquid-oxygen, liquid-hydrogen engine.

Boeing's Delta IV family of expendable rockets is used to launch virtually any size medium or heavy payload into space.

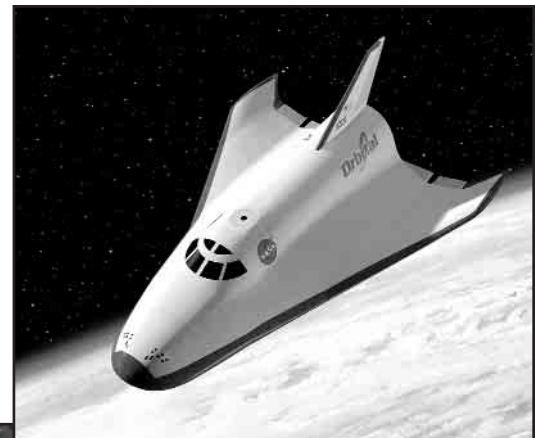
Overall, SSC's role in future space flight promises to remain as vital as it has been in the past.



Above, a remote camera recorded a close-up view of a Space Shuttle Main Engine (SSME) during a static test firing. Today, all astronauts ride on SSMEs tested at Stennis Space Center



Electro-mechanical actuator testing on twin XRS-2200 Linear Aerospike engines, left, originally built for the X-33 program, was performed at Stennis in August 2001. Information learned from the test series could provide key advancements for propulsion systems of future spacecraft, such as the Orbital Space Plane, above.



# Dryden's One NASA efforts help other centers' ideas take wing

*Editor's note: This is one in a series of stories from other NASA centers on the One NASA concept. This month's story is from Dryden Flight Research Center.*

**N**ASA (and before 1958, the National Advisory Committee on Aeronautics) has always leveraged the flight-test assets of Dryden Flight Research Center (DFRC) for the benefit of research projects that were born anywhere a NASA brain conceives something that involves atmospheric flight, true to the One NASA concept.

Dryden's resident engineering talent generates projects as diverse as solar-powered Unmanned Aerial Vehicles that can fly higher than any other non-rocket powered aircraft, and jets that can precisely position themselves in the wake of another aircraft to realize 15 percent fuel savings. But it is part and parcel of the Dryden mission to fly the dreams of the other NASA centers.

The Space Shuttle first took wing at DFRC in 1977, released from the back of its 747 carrier aircraft to validate its landing profile.

When Langley engineers conceived the

Mach 7 X-43 scramjet research craft, Dryden was the place from which to fly it. NASA Marshall Space Flight Center's forays with the X-40A were made possible by flights over California desert ranges Dryden shares with Edwards Air Force Base.

Gary Krier, director of flight operations, has been at Dryden since he was a research pilot on the supercritical wing F-8 program that has generated vast fuel savings for air transports. That program started as a concept in the mind of NASA Langley Research Center engineer Richard Whitcomb.

Krier agrees there's nothing new about joining with other NASA centers to get the job done in the sky above Dryden. "Now, the notion that One NASA extends beyond even our traditional aeronautical joint ventures makes the concept accessible to everyone at Dryden," Krier said. "No matter what your task is at Dryden, there's a chance you can contribute to the success of another center's project for the good of NASA."

To support the Columbia accident investigation, pilots from Dryden and Johnson Space Center are flying Dryden's recently acquired



**NASA Dryden Flight Research Center's David Bushman, right, explains the capabilities of the Altus Unmanned Aerial Vehicle to NASA Langley Research Center's Charles Hudgins.**

Gulfstream III passenger aircraft, on loan to JSC for the duration of the investigation.

Kevin Petersen, Dryden's director, says One NASA goes beyond what Dryden can do for NASA. "We have been the beneficiary of the talents of people from other NASA centers when we've been stumped by a technical hurdle. In those cases, our compatriots in the NASA family have come to our aid."

## Star Scene at



## Visitor Center



### Apollo 13 astronaut visits StenniSphere

Fred W. Haise, Apollo 13 astronaut and native of Biloxi, visited StenniSphere with family members Sept. 19 to see the new Centennial of Flight exhibit. Showcased in the exhibit is the cooling suit Haise wore during the Apollo 13 mission, April 11-17, 1970. During the visit Haise donated his training helmet to the visitor center. From left are David Maitland, Haise's daughter Mary Margaret Maitland, Haise, and his sons, Stephen W. Haise and Fred T. Haise.

## New exhibit highlights history of flight

**S**tenniSphere opened its new exhibit, From First Flight to Space Flight, celebrating 100 years of flight, on Aug. 29.

The centerpiece display includes a 1/6-scale model of the Wright flyer and highlights the developments space flight has brought to life on Earth.

From First Flight to Space Flight also includes a display of real Apollo-era spacesuits and shows the evolution of the custom-tailored, earliest spacesuits to today's modular, interchangeable spacesuits.

As part of the celebration, StenniSphere welcomed Col. Rich Graham (Ret.), former squadron commander of the SR-71 Blackbird. He gave a presentation about the Blackbird and signed copies of the two books he has authored on the subject.



**Gulfport Job Corps students, from left, Sophronia Sellers, Sannier Magee and Christopher West look at a Wright flyer model on display in the Centennial of Flight Exhibit.**

### Oct. 18 – Astro Camp Saturday for grandparents & kids

StenniSphere will conduct its first-ever Astro Camp Saturday for grandparents and grandkids Saturday, Oct. 18, from 9 a.m. to 4 p.m. Grandparents will have an opportunity to inspire their future astronaut, rocket scientist or NASA engineer to reach for the stars with exciting activities, including building and launching a rocket.

The theme of this special camp is "Rocketry 101," where grandparents and grandkids will learn about space transportation systems and the evolution of space travel. The camp fee of \$50 includes both grandparent and grandchild. To register call (228) 688-2370.





## Grateful for Navy efforts

NASA Stennis Space Center Interim Director Michael Rudolphi, left, expresses his gratitude to Naval Oceanographic Office (NAVOCEANO) employees and officers during a recent NASA awards ceremony. The awards were for professional efforts and responsive delivery to NASA's Earth Sciences Applications Directorate during Columbia disaster recovery activities. Seated from left are Ron Magee, deputy director, Earth Science Applications Directorate; Rear Adm. Thomas Q. Donaldson V, Commander, Naval Meteorology and Oceanography Command; Capt. Philip Renaud, Commanding Officer, NAVOCEANO; and Capt. Rutledge P. Lumpkin, Executive Officer, NAVOCEANO.



## Meeting an astronaut

Visitors at the Diamondhead Centennial of Flight celebration Sept. 20 got a chance to meet Astronaut Douglas H. Wheelock, right, at the NASA Stennis Space Center StenniSphere booth. Wheelock has completed flight training to fly aboard the Space Shuttle and International Space Station. Talking with Wheelock are Madga Barnhill of Diamondhead and her son, Blake.



## Celebrating Hispanic contributions

April Lollar, an information services specialist for InDyne Inc., views the Hispanic Heritage Month display in the main lobby of Building 1100 recently. Observed Sept. 15 to Oct. 15, Hispanic Heritage Month celebrates contributions made by Hispanics across the nation and within NASA.



## Serving up appreciation

Miguel Rodriguez, director, Propulsion Test Directorate, left, serves a scoop of ice cream to Vince Andres, support services specialist, during the annual Employee Appreciation Ice Cream Social on Sept. 17. The annual event recognizes employees who have contributed to community service activities above and beyond their usual work assignments.

## DATA ...

Continued from Page 4

Currently, the NRL uses MODIS data collected by Goddard Space Flight Center in Maryland to provide the Navy with time-sensitive oceanographic information, including

military operations in Iraq. "We will develop similar (oceanographic) products for the Gulf Coast," Arnone said.

ESA may use the near real-time MODIS data to help fight important battles too, using it to conduct research into coastal erosion or invasive species or other issues that would

benefit from timely, quickly updated remote sensing data.

There are also plans to make this data available to the public, Stanley said. "We are looking at developing a Web site or portal which would allow the public and researchers to access some MODIS products."

## It's peak time of year to encounter deer

The highest risk months for deer-vehicle crashes (DVCs) are October through February, with another peak in the spring when young, tender vegetation is abundant.

At Stennis, security records indicate there are at least 25 DVCs each year. Highway safety advocates emphasize that the best way to avoid DVCs is vigilance.

In darkness or near-darkness, motorists frequently do not see an animal until it is too close to avoid. Because deer are most active during the evening and early morning hours, 90 percent of all DVCs occur between dusk and dawn.

To reduce DVCs, the following precautionary tips are recommended:

- Maintain heightened awareness, especially during high-risk months and in the highest-risk time periods.
- If you see one deer on or near a roadway, expect others to follow. Slow down and be alert.
- After dark, use high beams when there is no oncoming traffic. However, be aware that bright lights tend to immobilize deer. If that happens to a deer in your path, honk your horn.
- Always wear a seat belt as required by state law and drive at a safe, sensible speed to deter such collisions.
- Stay alert. Deer are unpredictable and often dart out into traffic.
- If you hit a deer, don't touch it. If it's alive, it may be dangerous.

Report any DVCs to a local law enforcement agency or a state wildlife officer and your insurance agent/company within 24 hours. At SSC, DVCs should be immediately reported to Security (911).

## QUICKLOOK

**Fire Department to mark Fire Prevention Week.** Stennis Space Center (SSC) Fire Department will observe Fire Prevention Week, Oct. 5-11, by placing displays around the site, providing information to on-site personnel and participating in Safety Day on Oct. 8. The annual SSC Safety Day will take place in tents in the open area west of C Road behind Buildings 1100 and 1103, and will feature speakers, a safety and health fair and fun safety activities for the SSC community. Fire Prevention Week started as a result of the Great Chicago Fire of 1871. For more information call the Fire Department at ext. 688-3639.

**Entertainment, food and exhibits at the International Festival.** The Stennis Association for Cultural Awareness is hosting a celebration of our diversity by sponsoring the annual International Festival on Oct. 23, from 11 a.m. to 2 p.m. There will be stage performances by dancers and musicians in front of Building 1100, and samples of ethnic foods, cultural exhibits and artifacts from many different countries in the Atrium. There will also be door prizes. Mark your calendars now and join the celebration. For more information call the NASA Office of Equal Opportunity at ext. 688-2079.

**Full Cost Initiative training available on the Web.** Learn Full Cost Initiative basics in a short time period by taking the Full Cost 101 Web-based training. Visit <https://fullcost.hq.nasa.gov/>, go to the training page, click on the course and download the document.

## First flight to space flight: A comparison



### Wright Flyer

8 feet, 1 inch  
650 pounds  
40 feet, 4 inches  
Four-cylinder  
engine, 12 hp

### Space Shuttle

<b>Height</b>	184 feet, 2 1/2 inches
<b>Weight</b>	4.5 million pounds
<b>Wingspan</b>	78.06 feet
<b>Power</b>	Three Main Engines at 393,800 pounds of thrust each/two Solid Rocket Boosters at 3.3 million pounds of thrust each
<b>Flight Speed</b>	17,322 mph
<b>Altitude</b>	Maximum 400 miles
<b>Flight Duration</b>	17.5 days (longest to date)
<b>Distance Flown</b>	Over 5 million miles per average flight
<b>Passengers</b>	Eight, maximum

## LAGNIAPPE

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Editor . . . . . Marty Oramous

Comments or suggestions  
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LAGNIAPPE Office  
Building 1200, Room 208D  
Stennis Space Center, MS 39529

or call:  
(228) 688-3585

*Deadline for content submissions  
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